

# TECHNICAL MEMORANDUM

## Utah Coal Regulatory Program

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January 12, 2009

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TO: Internal File

THRU: James D. Smith, Permit Supervisor  
Steve Christensen, TeamLead, Reclamation Hydrologist *SKC*

FROM: Peter Hess, Environmental Scientist III *PH by S&S*

RE: Full Extraction Pillar Splitting Life of Mine, CONSOL Energy Company,  
Emery Deep Mine, C/015/0015, Task ID #3086

### SUMMARY:

The Division generated two deficiencies to the Task ID # 2990 application on August 11, 2008. The Permittee responded to those deficiencies on November 20, 2008.

This technical memorandum will address the adequacy of the Permittee's responses to the following:

**R645-301-525.460 and R645-301-525.490**, The Permittee must provide the Division with a map that shows the anticipated subsidence isopachs according to the approved mining and reclamation plan. The Division needs this information in order to evaluate the subsidence prediction models. In addition, the Permittee must also modify the MRP so that the Permittee will include in the annual report a map subsidence map that shows the subsidence isopachs. The Division needs that information to evaluate subsidence.

**R645-525.410**, The Permittee must update the statement in Chapter V page 26 that states "the Permittee proposes full extraction mining" to "the Permittee will conduct full extraction mining".

### SUBSIDENCE CONTROL PLAN

Regulatory Reference: 30 CFR 784.20, 817.121, 817.122; R645-301-521, -301-525, -301-724.

## Analysis:

### Subsidence Control Plan

The Task ID # 3086 application contains a revised PLATE V-5, SUBSIDENCE MONITORING POINTS AND BUFFER ZONES (last revision September 2008) which depict subsidence isopachs for the following pillar sections; 8, 9 10, 11 and 12 West. Panel 1 North (located east of Christiansen Wash) is also depicted. The subsidence isopachs show a maximum deformation of two to three feet. The surface deflection estimates are based on the thickness of seam extracted and the amount of overburden thickness undermined, and experience gained by the Mine over the years.

The Permittee states in the application that all roof and rib control issues identified in the Emery full extraction pillar retreat mining will be approved by the U.S. Department of Labor / Mine Safety and Health Administration.

CH V Page 27 of the Emery Deep Mine MRP states that the maximum deflection anticipated will be fifty percent of the extracted coal seam height. Seam height varies from six to ten feet; thus the maximum anticipated deformation could vary from three to five feet. Burden thickness varies from 150 feet to 750 feet or greater. Angles of draw vary from five degrees to 15 degrees, again dependent upon depth of cover and geology. Although a surface deflection equal to fifty percent of the extraction height seems high, low burden thickness and differences in geology can account for this high degree of subsidence.

The Permittee submits monthly subsidence reports which contain detailed cross section data on several panels which CONSOL has used to refine its subsidence prediction model.

The Permittee's response to the deficiency aired on August 11, 2008 (**R645-301-525.460 and R645-301-525.490**) states the following; "the subsidence monitoring point data contained in the annual report is only a spot elevation change at the center of the panels. This data cannot be extrapolated into isopac lines."

The isopach contours shown over the six pillar sections show "waves" of deformation where barriers are left between the extraction areas. These barriers are approximately one hundred and fifty feet wide. Assuming roof conditions remain conducive to mining in the area of the barriers, a continuous subsidence trough across the area may minimize surface impacts over and adjacent to those barriers, while increasing coal recovery.

The Permittee needs to compare the subsidence data submitted in the annual report with the Mine's current subsidence prediction model to determine if that model is accurate. That determination needs to be submitted with the Annual Report.

Deficiencies **R645-301-525.460** and **R645-301-525.490** have been adequately addressed.

In Chapter V page 27 of the MRP, the Permittee states:

Full extraction mining (planned subsidence) is proposed at Emery in areas designated as full extraction as noted on Plate V-5.

**R645-525.410; Full Extraction Pillar Recovery;**

The Task ID # 2099 deficiency list required the Permittee to modify the text on CH V Page 27, paragraph one to state that “**full extraction mining (planned subsidence) will occur at Emery in areas designated full extraction as noted on Plate V-5** “. The Permittee’s September 9, 2008 revision adequately addresses the aforementioned deficiency.

**Findings:**

The information provided in the Task ID # 3086 application adequately addresses the two remaining deficiencies aired on August 11, 2008. The responses are considered adequate to meet the requirements of this section.

**RECOMMENDATION:**

The full extraction pillar splitting plan has met all the requirements of the engineering technical memorandum written on August 11, 2008, and it should be approved.